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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
WILLIAMS, LAWRENCE B	

ART UNIT	PAPER NUMBER
2611	

DATE MAILED: 10/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/471,857	GU, QIZHENG	
	Examiner	Art Unit	
	Lawrence B. Williams	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 July 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,5-13,15,16 and 20-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,5-13,15,16 and 20-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1, 5-13, 15-16, 20-26 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 5, 11-12, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Luz et al. (US Patent 6,088,399) in view of Damgaard et al. (US Patent 6,766,178 B1).

(1) With regard to claim 1, Luz et al. a method for receiving a signal, said method comprising the steps of receiving an RF signal, said RF signal comprising a plurality of information channel signals each comprising different code division multiple access data spread using a different spreading codes, wherein each of said plurality of information channel signals are transmitted in one of a plurality of transmission bands, and each of said plurality of information channel signals is carried on one of a plurality of carrier frequencies; down-converting said RF signal to form an intermediate signals wherein said intermediate signal comprises: down-converted versions of each of said plurality of information channel signals, and said down-converted versions of each of the plurality of information channel signals are generated from a plurality of frequencies and said down-converted versions of each of said

plurality of information channel signals are within a common frequency spectrum; and decoding said intermediate signal to extract data from said down-converted versions of each of said plurality of information channel signals (col. 1, lines 25-51). Luz et al. does not explicitly use the term intermediate signal but does teach the three separate frequency bands being down converted to a single frequency (col. 1, lines 44-48) which would inherently include down converted to an intermediate signal to one of ordinary skill in the art. Luz et al. discloses that multicarrier transmission transmits information over the bandwidth of interest (col. 1, lines 27-30), which would inherently ensure that the information signals are within a common frequency spectrum. Though Luz et al. does not use the term decoding, he does teach despreading the signal paths with separate despreaders using a unique Walsh code, which would, corresponds to applicant's decoding to extract data.

Luz et al. does not however teach the down-converting by a single down converter.

However, Damgaard et al. discloses a multi-band telephone in Fig. 1, wherein he teaches a down-converter (35) an RF signal to form an intermediate signal wherein the intermediate signal comprises down-converted versions formed by the down-converter (col. 4, line 40- col. 5, line 20).

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Damgaard et al. to reduce circuit complexity.

(2) With regard to claim 5, as noted above, Damgaard et al. also discloses in Fig. 1, wherein said step of down-converting comprises down-converting each of said plurality of carrier frequencies by a plurality of oscillator frequencies.

(3) With regard to claim 11, though Luz et al. is silent on the subject of receiving an RF signal from a cellular base station, he does teach the use of the invention in cellular communication **systems** (col. 1, lines 20-24) which would inherently include a base station.

(4) With regard to claim 12, Luz et al. also discloses in Fig. 1, the method of claim 1 further comprising the step of filtering said intermediate signal to attenuate at least one signal outside the common frequency spectrum before performing said step of down-converting.

(5) With regard to claim 21, claim 21 discloses limitations similar to those disclosed in claim 1. Therefore a similar rejection applies.

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Luz et al. (US Patent 6,088,399) in view of Damgaard et al. (US Patent 6,766,178 B1) and further in view of Yokev et al. (US Patent 5,499,266).

As noted above, Lutz et al. in combination with Damgaard et al. disclose all limitation of claim 1. They do not explicitly teach wherein the frequency spacing between each adjacent pair of said plurality of carrier frequencies and between each adjacent pair of said oscillator frequencies is substantially the same.

However, Yokev et al. also teaches wherein the frequency spacing between each adjacent pair of said plurality of carrier frequencies and between each adjacent pair of said oscillator frequencies is substantially the same (col. 19, lines 23-34).

It would have been obvious to one skilled in the art at the time of invention to incorporate the teaching of Yokev et al. as a method of translating each of the carrier frequencies to a specific pass band dependent upon the oscillator frequency.

5. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Luz et al. (US Patent 6,088,399) in view of Damgaard et al. (US Patent 6,766,178 B1) as applied to claim 1 in view of Bell, III et al. (US Patent 6,088,348).

(1) With regard to claim 7, claim 7 inherits all limitations of claim 1 above. As noted above, Luz et al. in combination with Damgaard et al. discloses all limitations of claim 1. They do not however, explicitly teach wherein said common frequency spectrum comprises a first common frequency spectrum, and the step of decoding said intermediate signal comprises the step of forming a base band signal by down-converting said first common frequency spectrum to a second common frequency spectrum, said second common frequency spectrum lower in frequency than said first common frequency spectrum.

However, Bell, III et al. teaches wherein said common frequency spectrum comprises a first common frequency spectrum (PCS 1930-1990 MHz), and the step of decoding said intermediate signal comprises the step of forming a base band signal by down-converting said first common frequency spectrum to a second common frequency spectrum (~210.38 MHz), said second common frequency spectrum lower in frequency than said first common frequency spectrum.

Bell, III et al. teaches in Fig. 5, down converting both the PCS and GPS signals to an intermediate signal to a spectrum in the 210.38 MHz range (col. 6, lines 21-31). Then subsequent processing of the IF signal takes place (col. 6, lines 1-6), which would inherently include forming a baseband signal and decoding of the information, contained in the received signal.

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Bell, III et al. as a method of implementing a system to effectively support wireless communications operating in two or three distinct frequency bands (col. 3, lines 17-20).

(2) With regard to claim 8, Bell, III et al. also discloses down-converting the intermediate signal using a first oscillator signal (1769.62-1779.62 MHz) to form a first base band component signal and a second oscillator signal (1785.80 MHz) to form a second base band component signal, the first and second oscillator signals each at a same frequency.

Bell, II, et al. discloses the first oscillator reference signal over a range which includes the 1785.80 MHz used for the second oscillator signal (same frequency). Though Bell, III et al. is silent as to the oscillator signals being at a different phase, it would be obvious to one skilled in the art that the signals would need to be out of phase to adequately distinguish the PCS signal from the GPS signal given that they are both contained in the down converted 210.38 MHz signal.

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Bell, III et al. as a method of implementing a system to effectively support wireless communications operating in two or three distinct frequency bands (col. 3, lines 17-20).

6. Claim 13, 15-16, 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Luz et al. (US Patent 6,088,399) in view of Damgaard et al. (US Patent 6,766,178 B1).

(1) With regard to claim 13, Luz et al. discloses in Fig. 1, a mobile radio telephone unit comprising: an antenna configured to receive an RF signal, said RF signal comprising a plurality of information channel signals each comprising different code division multiple access data

spread using a different spreading codes, wherein each of said plurality of information channel signals are transmitted in one of a plurality of transmission bands, and each of said plurality of information channel signals is carried on one of a plurality of carrier frequencies; down-converting said RF signal to form an intermediate signals wherein said intermediate signal comprises: down-converted versions of each of said plurality of information channel signals, and said down-converted versions of each of the plurality of information channel signals are generated from a plurality of frequencies and said down-converted versions of each of said plurality of information channel signals are within a common frequency spectrum; and decoding said intermediate signal to extract data from said down-converted versions of each of said plurality of information channel signals (col. 1, lines 25-51). Luz et al. does not explicitly use the term intermediate signal but does teach the three separate frequency bands being down converted to a single frequency (col. 1, lines 44-48) which would inherently include down converted to an intermediate signal to one of ordinary skill in the art. Luz et al. discloses that multicarrier transmission transmits information over the bandwidth of interest (col. 1, lines 27-30), which would inherently ensure that the information signals are within a common frequency spectrum. Though Luz et al. does not use the term decoding, he does teach despreading the signal paths with separate despreaders using a unique Walsh code, which would, corresponds to applicant's decoding to extract data.

Luz et al. does not however teach the down-converting by a single down converter.

However, Damgaard et al. discloses a multi-band telephone in Fig. 1, wherein he teaches a down-converter (35) for down-converting an RF signal to form an intermediate signal wherein

the intermediate signal comprises down-converted versions formed by the down-converter col. 4, line 40- col. 5, line 20).

(2) With regard to claim 15, Damgaard et al. also discloses in Fig. 1, wherein the down-converter is configured to down-convert each of a plurality of carrier frequencies by a plurality of oscillator frequencies.

(3) With regard to claim 16, claim 16 inherits all limitations of claim 13. Furthermore, claim 16 discloses limitations similar to those disclosed in claim 6. Therefore a similar rejection applies.

(4) With regard to claim 27, Damgaard et al. also discloses in Fig. 1, wherein each down-converted version is processed by circuitry (36, 39, 41, 43, 53) that process all other down-converted version from the down-converted to the decoder.

7. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Luz et al. (US Patent 6,088,399) in view of Damgaard et al. (US Patent 6,766,178 B1) as applied to claim 8 and further in view of Applicant's Admitted Prior Art.

(1) With regard to claim 9, claim 9 inherits all limitations of claim 8 above. As noted above, Luz et al. in combination with Damgaard et al. disclose all limitations of claim 8. They do not however disclose wherein said first base band component comprises a first folded signal and said second base band component comprises a second folded signal, each folded signal having a frequency spectrum narrower than said first common frequency spectrum.

However, Applicant's Admitted Prior Art teaches wherein said first base band component comprises a first folded signal and said second base band component comprises a second folded

signal, each folded signal having a frequency spectrum narrower than said first common frequency spectrum (page 4, lines 17-25).

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of the prior art as a known method step in implementing a multimode receiver.

(2) With regard to claim 10, Applicant's Admitted Prior Art also teaches in Fig. 3, the steps of sampling (311) said first base band component to form a first digital representation; sampling (315) said second base band component to form a second digital representation; and combining said first and said second digital representations to form an unfolded signal, said unfolded signal having a frequency spectrum greater than the spectrum of the first folded signal.

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of the prior art as a known method step in implementing a multimode receiver.

8. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bell, III et al. (US Patent 6,088,348) in view of Damgaard et al. (US Patent 6,766,178 B1).

Bell discloses in Fig. 5, a CDMA receiver for operating in at least a first mode and a second mode, said CDMA receiver comprising: an initial RF stage (512, 514; 532, 534), said initial RF stage for outputting a received RF signal; an oscillator (554), said oscillator for generating a plurality of oscillator signals, each at a different frequency, when the receiver operates in the first mode and generating a single oscillator signal when the receiver operates in the second mode (col. 6, lines 21-31). Though Bell, III et al. is silent on the subject of a base band stage, coupled to said down-converter, said base band stage for processing said intermediate signal, he does teach the complexity of subsequent processing of the intermediate

signal being minimized (col. 6, lines 1-6). A baseband section for subsequent processing would be readily apparent to one of ordinary skill in the art. Though Bell, is silent on the term CDMA, he does teach that the receiver subsystem is readily applicable to wireless communication devices, including mobile phones which subscribe to cellular (col. 6, lines 6-9).

Bell does not teach a down-converter coupled to said initial RF stage and said oscillator, said down-converter for receiving said received RF signal and multiplying said RF signal by said plurality of oscillator signals when the receiver operates in the first mode, and multiplying said RF signal by said single oscillator signal when the receiver operates in the second mode, to generate an intermediate signal.

However, Damgaard et al. discloses a multi-band telephone in Fig. 1, wherein he teaches a down-converter (35) coupled to said initial RF stage (19, 23, 24) and said oscillator (76), said down-converter for receiving said received RF signal and multiplying said RF signal by said plurality of oscillator signals when the receiver operates in the first mode, and multiplying said RF signal by said single oscillator signal when the receiver operates in the second mode, to generate an intermediate signal (col. 4, line 40- col. 5, line 20).

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Damgaard et al. to reduce circuit complexity.

9. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Luz et al. (US Patent 6,088,399) in view of Damgaard et al. (US Patent 6,766,178 B1) as applied to claim 21 and further in view of Shamlou et al. (US Patent 6,690,949 B1).

Claim 23 discloses the receiver of claim 21 on a chip apparatus. As noted above, Luz et

al. in combination with Damgaard et al. disclose all limitations of the receiver. They do not however explicitly teach disclose the receiver and down-converter as a chip apparatus.

However, Shamlou et al. discloses a system for supporting multiple wireless standards with a single circuit architecture (col. 2, lines 30-34).

It would have been obvious to one skilled in the art at the time of invention to combine the teachings of Shamlou et al. to minimize size weight, complexity, power consumption and cost (col. 2, lines 30-34).

10. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Luz et al. (US Patent 6,088,399) in view of Damgaard et al. (US Patent 6,766,178 B1) in view of Shamlou et al. (US Patent 6,690,949 B1) as applied to claim 23, and further in view of Yokev et al. (US Patent 5,499,266).

As noted above, Luz et al. in combination with Damgaard et al. and Shamlou et al. disclose all limitations of claim 23 above. They do not however disclose wherein said down–converter comprises an oscillator for generating an oscillator signal comprising a plurality of oscillator frequencies, the frequency spacing between each adjacent pair of said plurality of carrier frequencies and between each adjacent pair of said oscillator frequencies is substantially the same.

However, Yokev et al. discloses wherein said down–converter comprises an oscillator for generating an oscillator signal comprising a plurality of oscillator frequencies (col. 19, line 65-col. 20, line 7), the frequency spacing between each adjacent pair of said plurality of carrier frequencies and between each adjacent pair of said oscillator frequencies is substantially the

same (col. 19, lines 23-34). It would have been obvious to one skilled in the art at the time of invention to incorporate the teaching of Yokev et al. as a method of translating each of the carrier frequencies to a specific pass band dependent upon the oscillator frequency.

11. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Luz et al. (US Patent 6,088,399) in view of Damgaard et al. (US Patent 6,766,178 B1).

Luz et al. discloses in Fig. 1, an apparatus comprising: means (121) for receiving an RF signal, said RF signal comprising a plurality of information channel signals each comprising different code division multiple access data spread using a different spreading code, wherein each of said plurality of information channel signals are transmitted in one of a plurality of transmission bands, and each of said plurality of information channel signals is carried on one of a plurality of carrier frequencies; and means (125) for down-converting said RF signal to form an intermediate signal, wherein said intermediate signal comprises down-converted versions of each of said plurality of information channel signals, and said down-converted versions of each of said plurality of information channel signals are generated from a plurality of frequencies, said down-converted versions of each of said plurality of information channel signals are within a common frequency spectrum (col. 1, lines 25-51). Luz et al. does not explicitly use the term intermediate signal but does teach the three separate frequency bands being down converted to a single frequency (col. 1, lines 44-48) which would inherently include down converted to an intermediate signal to one of ordinary skill in the art. Luz et al. discloses that multicarrier transmission transmits information over the bandwidth of interest (col. 1, lines 27-30), which would inherently ensure that the information signals are within a common frequency spectrum.

Though Luz et al. does not use the term decoding, he does teach despreading the signal paths with separate despreaders using a unique Walsh code, which would, corresponds to applicant's decoding to extract data.

Luz et al. does not however teach the down-converting by a single down converter.

However, Damgaard et al. discloses a multi-band telephone in Fig. 1, wherein he teaches a down-converter (35) an RF signal to form an intermediate signal wherein the intermediate signal comprises down-converted versions formed by the down-converter col. 4, line 40- col. 5, line 20).

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Damgaard et al. to reduce circuit complexity.

12. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Luz et al. (US Patent 6,088,399) in view of Damgaard et al. (US Patent 6,766,178 B1) as applied to claim 25 above and further in view of Yokev et al. (US Patent 5,499,266).

As noted above, Luz et al. in combination with Damgaard et al. disclose all limitations of claim 25 above. They do not however disclose wherein said down–converter comprises an oscillator for generating an oscillator signal comprising a plurality of oscillator frequencies, the frequency spacing between each adjacent pair of said plurality of carrier frequencies and between each adjacent pair of said oscillator frequencies is substantially the same.

However, Yokev et al. discloses wherein said down–converter comprises an oscillator for generating an oscillator signal comprising a plurality of oscillator frequencies (col. 19, line 65- col. 20, line 7), the frequency spacing between each adjacent pair of said plurality of carrier

frequencies and between each adjacent pair of said oscillator frequencies is substantially the same (col. 19, lines 23-34).

It would have been obvious to one skilled in the art at the time of invention to incorporate the teaching of Yokev et al. as a method of translating each of the carrier frequencies to a specific pass band dependent upon the oscillator frequency.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence B Williams whose telephone number is 571-272-3037. The examiner can normally be reached on Monday-Friday (8:00-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ghayour Mohammad can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lawrence B. Williams

lbw
October 25, 2006